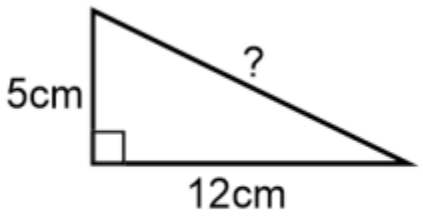
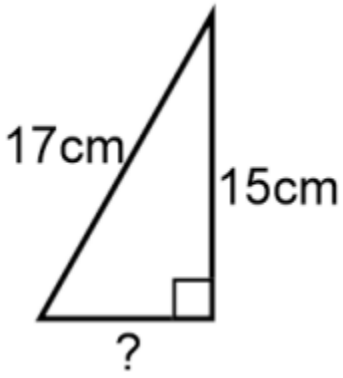
C2. Missing angles

Do now: find the missing lengths

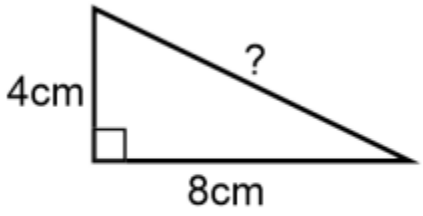
a)



b)



c)



a) 13cm

b) 8cm

c) $\sqrt{80}cm = 8.9cm$

Worked Example	Your Turn
$\text{Sin}(x) = \frac{1}{2}$	$\text{Sin}(x) = \frac{2}{5}$

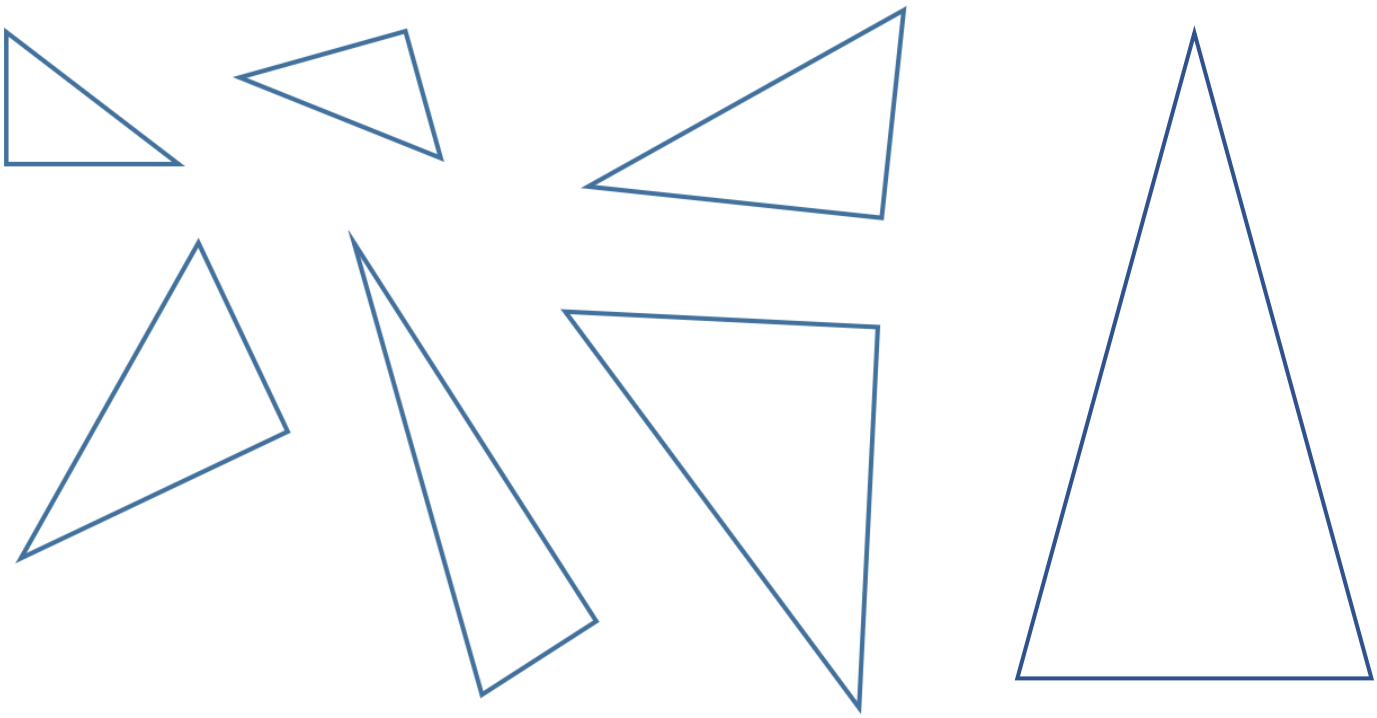
Task

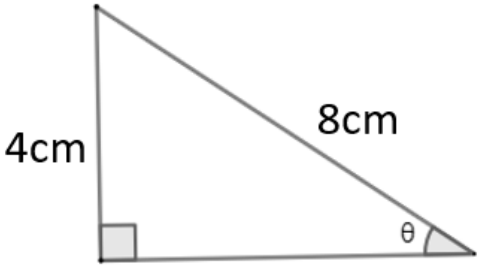
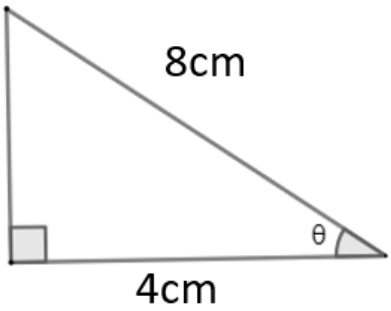
Find 'x'. Give your solution to 2 decimal places.

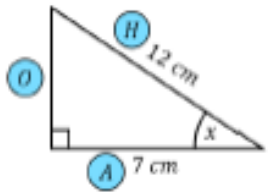
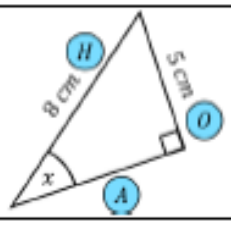
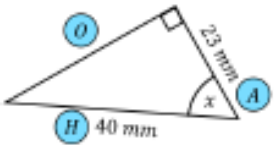
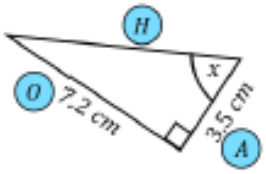
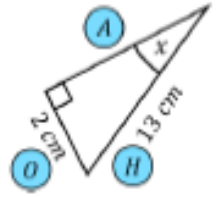
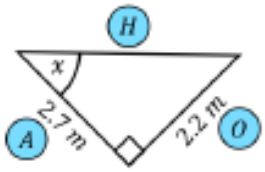
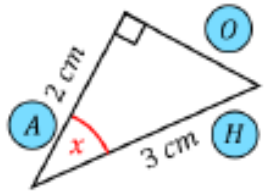
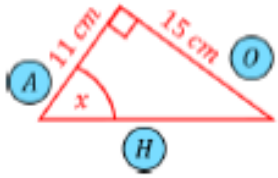
Operation	Inverse operation

1. $\text{Sin}(x) = 0$ $x = 0$
2. $\text{Sin}(x) = \frac{1}{5}$ $x = 11.54$
3. $\text{Sin}(x) = \frac{2}{5}$ $x = 23.58$
4. $\text{Sin}(x) = \frac{3}{5}$ $x = 36.87$
5. $\text{Sin}(x) = \frac{4}{5}$ $x = 53.13$
6. $\text{Sin}(x) = 1$ $x = 90$
7. $\text{Cos}(x) = 0$ $x = 90$
8. $\text{Cos}(x) = \frac{1}{5}$ $x = 78.46$
9. $\text{Cos}(x) = \frac{2}{5}$ $x = 66.42$
10. $\text{Cos}(x) = \frac{3}{5}$ $x = 53.13$
11. $\text{Cos}(x) = \frac{4}{5}$ $x = 36.87$
12. $\text{Cos}(x) = 1$ $x = 0$

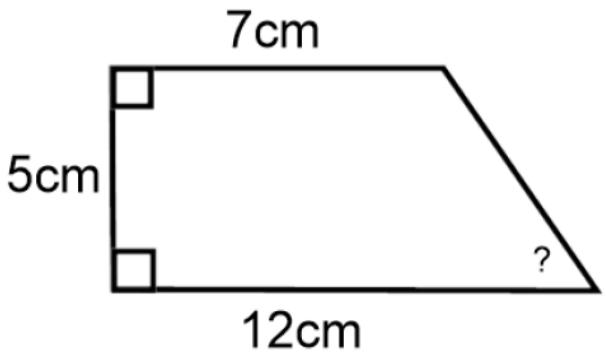
Labelling triangles



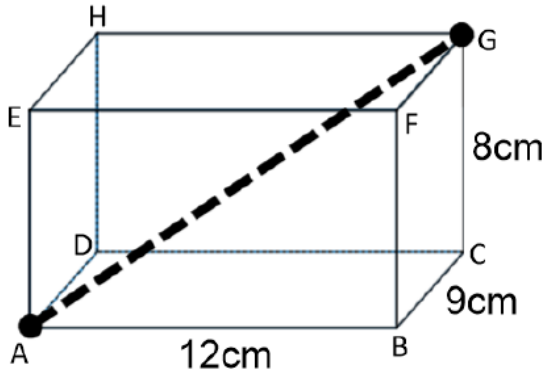
Worked Example	Your Turn
	

Labelled diagram	Choose ratio	Substitute into formula	Rearrange formula	Answer (1dp)
	cos	$\cos x = \frac{7}{12}$	$x = \cos^{-1}\left(\frac{7}{12}\right)$	54.3°
	sin	$\sin x = \frac{5}{8}$	$x = \sin^{-1}\left(\frac{5}{8}\right)$	38.7°
	cos	$\cos x = \frac{23}{40}$	$x = \cos^{-1}\left(\frac{23}{40}\right)$	54.9°
	tan	$\tan x = \frac{7.2}{3.5}$	$x = \tan^{-1}\left(\frac{7.2}{3.5}\right)$	64.1°
	sin	$\sin x = \frac{2}{13}$	$x = \sin^{-1}\left(\frac{2}{13}\right)$	8.8°
	tan	$\tan x = \frac{2.2}{2.7}$	$x = \tan^{-1}\left(\frac{2.2}{2.7}\right)$	39.2°
	cos	$\cos x = \frac{2}{3}$	$x = \cos^{-1}\left(\frac{2}{3}\right)$	48.2°
	tan	$\tan x = \frac{15}{11}$	$x = \tan^{-1}\left(\frac{15}{11}\right)$	53.7°

Extensions



45°



Find the size of the angle between the line AG and the plane ABCD.

28.1°

The diagram shows a circle with centre O.
Points A, B, C and D all lie on the circumference of the circle.

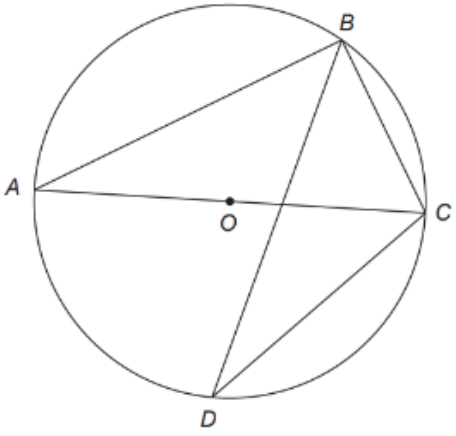


Diagram not drawn to scale

The radius of the circule is 3.6 cm, BC = 4.1 cm and $B\hat{C}D$ = 93°.

Find the size of $D\hat{B}C$, correct to 3 significant figures.

52.3